A SELF-RETAINING TROCAR AND CANULA FOR THE ASEPTIC EVACUATION OF DISTENDED VISCERA.[1]

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For years I have been impressed by the fact that to the operation for the relief of intestinal obstruction enterostomy adds the grave danger of peritonitis from fecal soiling. Yet enterostomy may be absolutely necessary in order to avoid the perilous handling of heavily loaded intestine, sometimes with dragging upon the mesentery to the point of rupture. No matter how carefully the enterostomy is done; even when the coils of intestine can be drawn out of the wound and incised at a dependent part or when a trusted assistant supports the puncturing trocar and canula, or when it is possible to stitch a tube into the lumen of the viscus, every surgeon knows that here even an approximation to asepsis is impossible. In these cases, too, the peritoneum is in a congested and receptive state, so that infection is hard to avoid.

This matter was recently once more brought to my notice when a death occurred soon after an operation for acute obstruction. Much time had been lost because of my efforts to make the multiple enterostomy as aseptic as possible. Greater speed would have afforded better chances of success.

With the idea of preventing infection and saving time, I devised the trocar and canula here to be described. George Tiemann & Co. have manufactured the instrument after my drawings.

Fig. 1. shows the instrument closed and ready for insertion into the bowel. The size of the canula is 32 French, but it can be manufactured of as small a size as 28 French. The trocar (A) is of special construction, flat and double edged, so that it may be inserted with a gentle motion and without the sudden thrust required by the more usual triangular point. The handle of the trocar is at A′. The part of the canula marked C is split longitudinally into two parts which swing out on hinges (D) until they make right angles with the long axis of the instrument. (See Fig. 2.) This swinging out is accomplished with the aid of a simple mechanism by pressing the sleeve E toward the point of the trocar, which can only be done after loosening the set-screw F. This screw is then tight-

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[1] Instrument present at the meeting of the Surgical Section, of the New York Academy of Medicine, April 6, 1906.

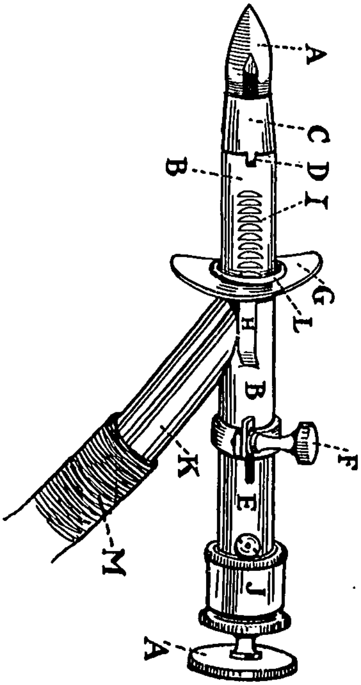

FIG. 1.

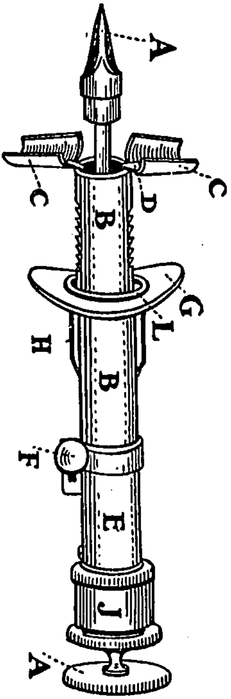

FIG. 2.

ened holding the wings in position. The shield (G.) is next pushed down toward the point of the trocar until it can go no

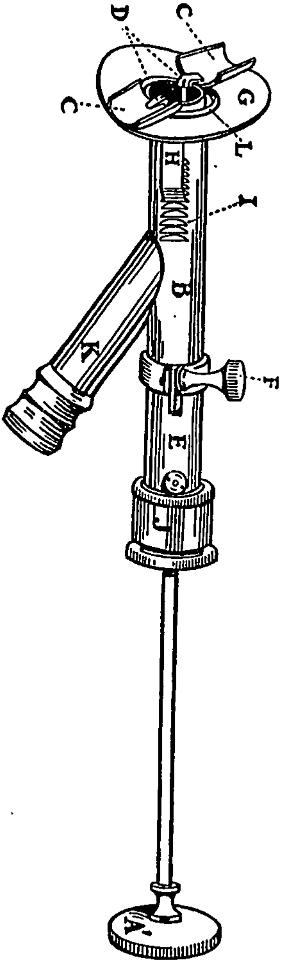

Fig. 3.

farther, being stopped by the wings (C). The intestinal wall is held firmly between the wings (C) and the elevated ring (L) of the shield (G). The shield cannot slip back, being held by the springs (H) which catch in the notches (I). The fluid from the intestine at once begins to flow out through K, a branch of the canula, to which a rubber tube (M) has been attached to carry the septic matter to a receptacle remote from the operative field. The trocar is drawn back into the canula beyond the branch (K), thus permitting a perfectly free flow. The well-known principle of passing the shaft of the trocar through a washer (in the chamber J) has been employed here in order to prevent leakage. A little sterile vaseline spread over the trocar and the first portion of the canula facilitates introduction. When the wings have once been spread and set and the shield has been pushed down,—the work of but a few seconds,—the instrument is firmly in place and the opening in the bowel is *flush with the wall of the viscus,* a considerable advantage when the intestine begins to collapse. It is best to place a preliminary Lembert purse-string suture around the place selected for the puncture, the suture to be tightened as the canula, its wings once more closed, is withdrawn. The trocar should not be pushed home when the wings are closed for withdrawal.

Two thorough and satisfactory tests with this instrument were made by me, using a piece of dead intestine, tensely distended with water. There was no leakage. It was also employed three times in operations on the living human subject. The first patient was dying of septic peritonitis and an enterostomy was made for drainage, without a preliminary purse-string. The instrument was left in for some hours. No leakage.

The second patient had an enormously distended and greatly thickened gall-bladder. The trocar and canula acted perfectly, evacuating in a few moments about twelve ounces of pus previous to cholecystectomy. The third patient was a man with acute symptoms following chronic obstruction of the transverse colon by a carcinoma. There was enormous distention of small intestine and the first portion of the colon.

Evacuation of a gallon of fecal contents through two punctures was aseptically performed. Absolutely no leakage.

Finer points of technique will suggest themselves to the surgeon on using the instrument. For example, in small intestine it may be advisable to insert the trocar at an angle oblique to the long axis of the gut so as to avoid possible injury to the opposite wall. In cases of empyema of the gall-bladder when calculi are present it is conceivable that they may get into the canula wedging the wings apart. If these stones cannot be removed by washing them back into the viscus with a syringe at the rubber tube the instrument may be withdrawn by cutting the wall of the now empty gall-bladder. If it is desirable to wash and partly sterilize the cavity of the gall-bladder before extirpation or other operation, it may be done by lavage with antiseptics.

The writer presents this instrument to the profession with faith in its usefulness and the hope that it may often prove of service in times of great surgical need.

[April 27, 1906. The instrument has been used a number of times since this article was written and has proven itself truly aseptic. For the sake of brevity the name Visceral Evacuator is suggested.]